

What is claimed is:

1. A method of measuring paper formation or distribution in a papermaking process, comprising:

- (a) providing a forming fabric;
- (b) depositing a paper slurry upon the forming fabric to form a wet web;

(c) transmitting light from a light source upon the wet web;

(d) reflecting the light from the wet web, thereby forming a pattern of reflected light; and

(e) forming an image corresponding to the pattern of the reflected light.

2. The method of claim 1 further comprising the step of moving the wet web longitudinally through the light pathway to facilitate the impingement of light upon the surface of the wet web.

3. The method of claim 1 in which the light source comprises a light line.

4. The method of claim 1 in which there are at least two independent sources of light.

5. The method of claim 1 in which the step of forming an image further comprises receiving the reflected light in a line scan camera.

6. The method of claim 5 in which the camera operates at a speed of at least about 50,000 Hz.

7. The method of claim 6 in which pixels are generated in forming the image.

8. The method of claim 7 in which the web comprises a water content of at least about 80% water during the reflecting step.

9. The method of claim 8 in which the web comprises a water content of between about 80% to about 95%.

10. The method of claim 2 in which the wet web moves at a speed of at least about 4000 feet/minute.

11. The method of claim 10 in which the forming fabric is black in color.

12. A system for measuring paper formation in real time using apparatus for a papermaking process, comprising:

(a) a rotating forming fabric having an upper and lower surface;

(b) a paper slurry deposited upon the upper surface of the forming fabric to establish a wet paper web, the wet paper web moving at a speed of at least about 4000 feet per minute;

(c) transmitting light from a light source upon the surface of a wet paper web;

(d) reflecting light from the surface of the wet paper web to a camera thereby forming a pattern of reflected light; and

(e) forming an image corresponding to the pattern of the reflected light.

13. The system of claim 12 in which the image is displayed upon a computer monitor.

14. The system of claim 12 in which the camera sends to a computer signals representing light received by the camera, further wherein the computer comprises a processor, whereby the processor of the computer compares said signals with predetermined stored values to

determine the degree of deviation of the formation of the paper web from desired paper web formation values.

5 15. The system of claim 14 in which the processor sends feedback signals to apparatus of the papermaking system to modify one or more papermaking parameters in real time to alter the characteristics of the wet web to cause the wet paper web to conform to desired paper web formation values.

16. The system of claim 15 in which the papermaking parameters comprise the group consisting of:

- 5
- a) paper uniformity,
 - b) sheet water content,
 - c) stock impingement angle,
 - d) vacuum box position, and
 - e) forming fabric tension.

17. The system of claim 12 in which the wet web forms a paper having a weight of less than about 16 lbs/2880 ft².

18. The system of claim 12 in which the camera is a line scan camera, and the image formed is constructed by scanning lines of the image.

19. The system of claim 12 in which the light is transmitted from a light source upon the surface of the wet paper web at an impingement angle of between about 25 and 65 degrees.

20. The system of claim 12 in which more than one light source is employed to transmit light.

21. The system of claim 12 in which a vacuum box is employed to take water from the wet web while the wet web is moving along the surface of the rotating forming fabric.

22. The system of claim 12 in which light from the light source travels through at least one focusing lens before impinging upon the surface of the wet web.